

History of the Formation of the Architectural Engineering Institute of ASCE [1,2,3,4,5,6]

Introduction

The formation of Architectural Engineering Institute is unusual and fascinating. AEI consists of two spheres of influence that have joined ranks for the better good of the building engineering: academia and industry. Capitalizing on the strengths of both student and professional membership the institute has broad appeal nationwide.

The unusual union of the Architectural Engineering Division (AED) of ASCE and the National Society of Architectural Engineering (NSAE) gave birth to the Architectural Engineering Institute (AEI). 16 years after the birth of AEI, the institute is growing, as it builds on the strength of its founding fathers and predecessors. The following narrative provides a brief overview of how AEI came into existence.

Inception of Architectural Engineering Division (AED) of ASCE

The inception of the Architectural Engineering Division of ASCE started at an ASCE luncheon in 1992. Sitting at one of the tables were Ed Pfrang, Jim Poirot, Al Dorman, and Paul Guyer. Some of the topics they discussed included:

- Why did the architects leave ASCEA (the American Society of Civil Engineers and Architects¹) in 1857?
- Why are architects now treating engineers so poorly?
- No forum for Building Design Team
- “Everyone” [each disciplines] is off in their own society (ASME, ASHRAE, IEEE, etc). They were not talking with each other, resulting in poor cross-pollination and sharing of important knowledge/issues. The inherent parochial architecture resulted in similarly narrow understanding of building construction issues. The reality of building construction requires not only understanding of all involved disciplines, but their integration and timing.
- Perhaps there should be an architectural engineering division of ASCE.

ASCE required that 1,000 signatures be gathered via petition and submitted as part of any application to start a new division. Paul Guyer chaired the petition drive, coordinating the collection of signatures throughout the country. Email was not the preferred means of communicating at that time; therefore, all petition transactions were accomplished through USPS. \$2K funding for postage was approved and Guyer initiated the solicitation of signatures. Petition targets were taken from the amenable Structural Engineer and Urban

¹ On November 5, 1852 American Society of Civil Engineers and Architects (ASCEA) was incorporated. This society was the precursor of ASCE.

Planning populations of the ASCE member universe. A brief announcement was published in ASCE News that winter. Stan Caldwell read the announcement and volunteered to lead the petition drive in Texas. He collected more than 150 signatures.² Nationwide, more than 1,000 signatures were obtained and the creation of a new Architectural Engineering Division (AED) of ASCE was approved.

First Steps

The seminal organizational meeting of AED was held during the ASCE Annual Conference in October 1993 at the Anatole Hotel in Dallas, Texas. The lengthy meeting established the cast of characters who would determine the fate of AED for the next several years. Six members were elected to the AED Executive Committee (ExCom):

- Al Dorman as **Past Chair** (for a newly formed division)
- Paul Guyer as **Chair**
- Paul Seaburg as **Vice Chair**
- Stan Caldwell as **Secretary**
- Ken Dawson as **Member at Large**
- John Fraunhoffer as **Member at Large**

In Dallas, New AE Division Gets Things Rolling. Newly installed ASCE President James W. Poirot, fourth from left, helped the recently formed Architectural Engineering Division get under way during its initial meeting in Dallas during the Society's annual convention last October. Members of the Division's first Executive Committee, from left, are Ken Dawson, Paul Seaburg, chair J. Paul Guyer receiving the Division charter from Poirot, Albert Dorman and Stan Caldwell.



Figure 1: 1993 ASCE News – Formation of AE Division of ASCE

During the meeting, several standing committees were organized for different building types and systems, resulting in the formation of 10+.

² Paul Rielly was brought into the fold through Stan Caldwell, his employer at the time.

As Chair, Paul Guyer identified three mandatory achievements necessary for AED success, i.e., to establish AED as valuable/credible and to raise visibility:

- Establish a high-quality, indexed peer-reviewed Journal
- Establish AE registration
- Migration to “Institute” in lieu of “Division” as a means of establishing separate “independence and autonomous” identity and to mitigate impressions that the AEs were somehow “subordinate” or controlled by the civil engineers (ASCE)

Guyer summarized his vision for the Division's future in a technical paper titled “Vision for ASCE's Architectural Engineering Division” [9], where he stresses focus on the multidisciplinary nature of the building design process and the need of the AED to be practitioner-oriented. His metric for the success of the Division was if AED provides a forum for all the technical disciplines that are part of the design process.

The following three years of AED bustled with activity. There were several committees which were particularly active, among which were the Industrial Buildings Committee (with Tom Babacz as Chair and Paul Rielly as Vice Chair), Committee on Mitigation of the Effects of Terrorism, and Committee on Facilities for the Aging.

It was during this time frame that several strategic steps were taken. The ExCom required all committee chairs to attend ExCom meetings and report on the progress being made by their committees. Several committee chairs were replaced because their progress was deemed inadequate. In 1994, The Journal of Architectural Engineering was established, under the leadership of Bijan Mohraz, with the objective of providing a forum for the multidisciplinary process of designing buildings and to inform its readers of the engineering and technological issues and changes facing architectural engineering [10].³ Additionally, key players joined AED at this time, including Mohammed Ettouney and Norm Glover.

Efforts were made by AED members to increase participation by architects. Paul Guyer had discussions with several architects (employees of architectural firms), AIA members. They expressed great interest in an AE concept, because they recognized the need to integrate the various disciplines and the benefits of establishing a consolidating institution/forum. The architects indicated that they were not best represented by AIA and that AIA dues were prohibitively high for individual members

AED made good initial progress. However, some opportunities to grow were stymied by the ASCE bureaucracy. There were several challenges and frustrations which AED faced:

- AE Division needed to be treated differently from other ASCE units; the standard ASCE model for divisions (funding, for example) did not work for AED.
- ASCE bureaucracy and operational requirements posed many challenges to growth.
- Architects, Mechanical Engineers, and Electrical Engineers had little or no interest in joining ASCE. For non-ASCE members, AED was not attractive, because any leadership role required ASCE membership.
- AED was required to deliver technical sessions at ASCE Annual Conferences, but the conferences were mostly attended by senior civil engineers that had no interest in

³ *Bijan Mohraz served as editor in chief through 2003, passing the torch to M. Kevin Parfitt. [13]*

architectural engineering subjects. Presentations by invited authors were often made to empty rooms.

The ExCom started realizing that the model for AED was flawed. Like all divisions, AED reported to the ASCE Technical Activities Committee (TAC), which was chaired by Dan Turner (a future ASCE President). Dan Turner met with the AED ExCom in San Diego in the fall of 1995 and engaged in a heated discussion with Paul Guyer and others on a variety of AE issues. The arguments included: lack of interaction with AE programs at universities and the students in these programs, especially when not part of a CE program; difficulties attracting non-ASCE members into AED; and constraints due to the ASCE bureaucracy.

History of the National Society of Architectural Engineers (NSAE)

- Initial Steps
 - 1965, SSAE Established at Penn State⁴
 - AEA at Kansas
 - 1981, Ronald Helms Led AEA to National
 - 1984, AEA evolved into NSAE
 - Dean Ardahl, Chuck Bissey, Ronald Helms, David Krug, Ken Rigsbee, Mark Tennison, Janet Yaegle, and Others



Figure 2: Original Logo for NSAE [8]

The Architectural Engineering Department at Penn State University is credited with starting the first student organization of architectural engineers. The Penn State Student Society of Architectural Engineering (SSAE) began in 1965 “to provide a strong binder for its students.” Other universities began similar groups including the Architectural Engineering Association at the University of Kansas. The second meeting of NSAE was held at Kansas State on August 12-14, 1983.⁵ All faced similar challenges; namely, providing a professional organization for its students and instilling a professional attitude for their lifetime careers. [2]

⁴ A membership card, dated 1965, with a hand written “honorary” for Prof. C. Herbert Wheeler was found at Penn State recently. On the back was a note of thanks for “helping us get started”. [12]

⁵ Two delegates from Penn State attended: Bill Long (SSAE president) and Moses Ling (faculty adviser), who flew to Manhattan, KS and stayed with Charles Bissey in his home. [12]

The various university-based AE programs differed in scope and number of years to obtain degrees. Most of the programs were housed in the universities' Departments of Civil Engineering. Some of the programs required the conventional 4 years, while others, required 5 years. The intent of AE programs was to prepare the graduate to practice in the broad field of designing and constructing buildings. Using this philosophy, an AE programs strove expose the student to architecture design, structural design and building environmental systems design. The various AE programs addressed this differently based on their course work and faculty availability. Considerable effort was devoted toward creating Accrediting Board for Engineering and Technology (ABET) criteria that would be acceptable to all.⁶ The lack of a professional organization for architectural engineers resulted in an overall handicap for this initiative.

The first notion for a national society for practicing architectural engineers was first proposed by Ronald Helms⁷ at the University of Kansas in 1981. The objective of this society was to develop a network of students and practicing alumni in the AE industry; the professional chapters would be a natural extension of the student chapters, once the students graduate. This society was initiated by several AE programs at universities throughout the US and was named National Society of Architectural Engineers (NSAE). The society's first meeting was held at the University of Kansas in August, 1982 with delegates from University of Texas, Oklahoma State University, the University of Miami (Florida), the University of Colorado, Kansas State University, North Carolina A&T and the University of Kansas.

NSAE's champion, Ron Helms, and its first founding members, among which were Ken Rigsbee and Mark McAfee, incorporated NSAE on September 7, 1984. To increase the society's membership, NSAE held a founding membership drive between 1986 and 1988. On December 31, 1988, NSAE had 575 founding members.

Growth of NSAE and Corresponding Challenges

Consistent with Ron Helm's vision, NSAE maintained a very close working relationship with the ABET accredited AE programs. This was evident in the first ten years of the society's existence, where the NSAE's board membership included national officers of each ABET accredited AE program in the US. In pursuing growth, key players in NSAE developed distinctly different views of which direction the Society should take. Ron Helms, had cultivated the growth of the Society and had very specific views on its future direction. Newer leadership of NSAE was interested in encompassing a broader and more professional scope (as opposed to a predominant academic focus).

One of the recurrent themes in NSAE in the 1990s was the pursuit of becoming a national organization; the key challenge to achieving this goal was the lack of overall membership. In 1991, NSAE reorganized its organizational structure to obtain a more national representation and accommodate a committee structure. The motivation in adopting this

⁶ In 1936, Penn State was the first program accredited in 1936 by Engineer's Council for Professional Development (ECPD) (the precursor of ABET, which was formed in 1980), followed shortly by Kansas State in the same year.

⁷ Chairman of the AE program at University of Kansas

change was to grow to a more professional and national representation in NSAE to better represent the AE industry. Following the reorganization, NSAE's board consisted of the national officers, four regional vice-presidents, and five division vice-presidents that represented the five technical activities or committees.

As the society evolved in its new organizational state, other challenges surfaced. Ron Helm moved to North Carolina Agricultural and Technical State University – A&E program and was hoping to move the NSAE stronghold from Kansas University to North Carolina A&T SU. At that point, the NSAE board members expressed interest in not relocating their “headquarters” and chose to use this as opportunity to shift focus in the Society’s direction. Strategically this decision caused some disagreements which led to some discord in the ranks that led to some attrition of membership.

Another constraint within NSAE was lack of capital, which stifled the Society’s ability to grow and prosper; this was highlighted when the National Architectural Engineering Exam (P.E. Exam) was granted approval from NCEES to be developed by NSAE, but NSAE was unable to secure the funding to follow through on developing and administering the exam.

Development of the AE PE Exam

Several years after having completed his term as Past President of NSAE, Mark McAfee (NSAE President, 1991) was invited back into the fold of NSAE. It was in this time frame that NSAE retained an outside association management organization, Barbee and Associates, to serve as the management administrator/executive director of the Society. Although there were several fundraising efforts, unfortunately, this organization was also unsuccessful in growing the membership and increasing capital, particularly affecting the rollout of the AE PE exam. In searching for a creative solution for joint partnership in developing an AE PE exam, NSAE developed contacts in other organizations: Architectural Engineering Division (AED), American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE), Illuminating Engineering Society (IES), American Society of Plumbing Engineers (ASPE).

The initial push to pursue the AE PE exam was made by the past president of NSAE Joe Talvacchio, who served on the state engineering licensing board of the State of Pennsylvania. Since Talvacchio knew some of the engineering licensing procedures, he made the initial contact with NCEES. To initiate the process of a new PE exam, 10 state licensure boards needed to officially request a new PE exam. Talvacchio’s involvement with the PA licensing board served as the initial catalyst in the process. Others states followed in their request.

NSAE obtained approval for this exam in 1995 a few years prior to initial interaction with AED. Once NSAE and the AED of ASCE merged and AEI took the lead in the process of developing the AE PE exam, Mark McAfee took the committee chair role of the AE PE Exam committee. Mark plays a critical role in this committee to this day.

NSAE Interaction with AED of ASCE

It was this search for joint partnership for AE PE exam that initial talks unfolded between NSAE and AED of ASCE, which eventually lead to merger of the two organizations. NSAE

had strong relationship with universities and students. AED had a stronger relationship with the AE industry. NSAE's interaction with AED was cordial as there was a willingness to talk. NSAE understood that AED had a bit stronger desire to join ranks, given the potential for formation of an ASCE institute (especially with the new ASCE requirements for institute formation). This relationship appealed to the structural engineering faculty within AE programs, but not necessarily to the other disciplines. It was this time that it was proposed that ASCE and NSAE work together to form a professional group meeting the needs of the AE profession.

The strong rapport, which each organization had with its respective base, further underlined the benefits of joining ranks. The initial contact between the two organizations indicated a general willingness to swallow pride and to make concessions for the better good of a constructive solution. The NSAE Board supported the initiative; however the support was not unilateral, as several board members were somewhat saddened by having to give up some of the organization's identity. With the formation of AEI, NSAE was granted two representative serving on the new Board of Governors, with AED being granted 4 BoG members.

Formation of the Architectural Engineering Institute (AEI)

Introduction

In recounting the synthesis of AEI, Paul Seaburg recounted:

Stan Caldwell was primary actor in presenting, articulating AED concept, identifying and capitalizing on all opportunities to promote and sell AED concept, while Norm Glover facilitated agenda by removing and diverting admin obstacles such as to streamline efforts and hasten processes. Norm has much ASCE corporate experience, knowledge, had an established network of "connections" and knew who to talk to - to make things happen...and happen they did. [3]

Seaburg agrees with the statement that the effort was the perfect storm having the right people at the right time at the right place.

Inception

The inception of AEI started at a Strategic Planning Retreat in Dallas, Texas in 1996. Only the AED ExCom members (6 people) attended, without staff. The concept and necessity of a new joint organization was discussed. Concepts ranged from establishing an academy to establishing a college. Recognizing that ASCE was then in the process of establishing two semi-autonomous institutes (Structural Engineering Institute and Geo Institute), it was finally decided to pursue the Architectural Engineering Institute in a union with NSAE. It was determined that timing was critical: with the concurrence of NSAE, AEI would be established with or without ASCE's blessing.

Leadership transition was also discussed at this time. The original AED officers had occupied their positions for nearly three years without any rotation. It was agreed that, effective October 1996:

- Al Dorman would leave the ExCom.
- Paul Guyer would become Past Chair.

- Stan Caldwell would become Chair. (nominated by Paul Seaburg)
- Paul Seaburg would remain as Vice Chair

At an AED ExCom meeting in Omaha, Nebraska in April 1997, Mark McAfee and Clay Belcher (officers of the National Society of Architectural Engineers) attended and actively participated. This was the second meeting of AED and NSAE leadership. At the first meeting, NSAE made a presentation and asked AED to help fund their efforts to create the NCEES Architectural Engineering Exam. At this second meeting, the discussions focused instead on the feasibility and mechanics of merging AED and NSAE to establish AEI.

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Memorandum of Understanding

Stan Caldwell followed-up with a series of phone calls with Mark McAfee and they eventually agreed upon the fundamental principles for a merger. Stan Caldwell asked Mark McAfee to draft a memorandum that would confirm their agreement. On July 14 1997, a Memorandum of Understanding (MoU) was signed between NSAE and AED to form AEI. The signatories were:

- NSAE
 - Mark McAfee, President
 - Clay Belcher, President Elect
- AED
 - Stan Caldwell, ExCom Chairman
 - Paul Seaburg, ExCom Vice Chairman

This agreement was a milestone in the history of AEI. It amounted to a timely AE Declaration of Independence, as shown in Figure 3.

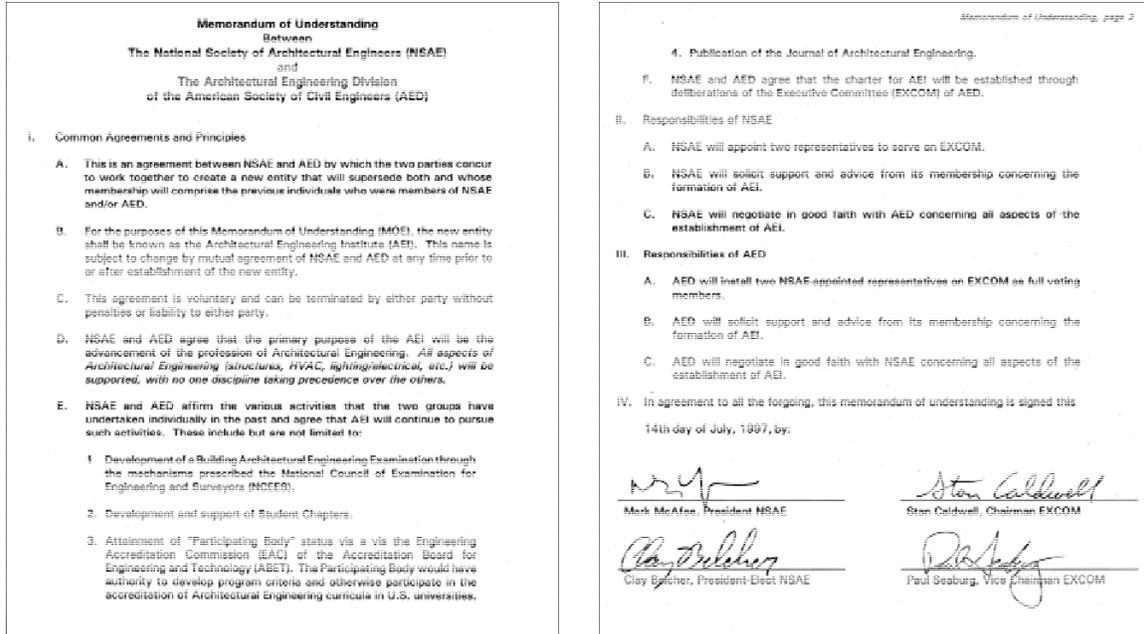


Figure 3: Memorandum of Understanding between NSAE and AED

AEI Leadership is Crystalized During a Crisis Moment

A critical event was held in Philadelphia on July 18-20, 1997, where a workshop on future institutes was called by ASCE. All divisions and technical councils were required to be represented at the workshop in order to learn the requirements for how they might become ASCE institutes. The ASCE Board of Direction and all of its committees were also meeting then, so this was also a good opportunity for networking.

All divisions and technical councils of ASCE were represented at the workshop, each with two or three people, a total of approximately 120. AED was represented by Stan Caldwell, Paul Seaburg, and Tom Babacz.

Scene 1: Seminar Room on Friday Night

This was an orientation and kick-off session. Jim Davis, Executive Director of ASCE (predecessor to Pat Natale), presided from an elevated podium at one end of the room. He started with an explanation that the future of ASCE's technical units would reside in the newly evolving institutes. Then he defined the threshold requirements to become an institute:

- 20,000 tier one members
- 20 years experience in Division

In reality, very few divisions (if any) and no technical councils met this criterion. Therefore, ASCE was urging divisions and technical councils to collaborate and form partnerships so as to become institutes.

Jim Davis then announced that ASCE had just established a five-year moratorium on new institutes, to allow the first two institutes (SEI and G-I) to demonstrate that they were on the right track. Strategically, from ASCE's perspective, all workshop attendees were there to start planning mergers and institute formations, not for the current year, but five years ahead. The rationale was that ASCE did not want its divisions to repeat the mistakes of the past. The next morning would be spent in break-out sessions to discuss possible mergers, with presentations of the results that afternoon.

Jim Davis concluded by offering to take questions from the floor. The prevailing response of attendees was outrage. The general attendance expressed the sentiment that the workshop was a premature waste of time. Many divisions and technical councils saw no reason to change the status quo. Others objected to the five-year wait. Stan Caldwell was the last of the vocal attendees to speak. He asked numerous "what-if" questions to Jim Davis and the attendance at large, regarding a division that was already prepared with a plan and a strategy meeting most of the new ASCE goals and was ready to move forward immediately: with 13 student chapters, with 3 professional practitioner chapters, with an ongoing program to develop a discipline-specific exam, and with the ability to attract hundreds or thousands of non-civil engineering members. What if that division was able to absorb its only competition in the process? What if that division was not willing to wait 5 years to move forward and would proceed without ASCE if necessary?

Jim Davis was apparently caught off guard and was not prepared to respond to Stan Caldwell's targeted questions. Stan Caldwell proceeded to explain AED's initiative to become an institute and that AED and NSAE had already signed a Memorandum of Understanding along these lines. Stan Caldwell encouraged Jim Davis to attend the break out session, scheduled for Saturday morning of the Workshop weekend.

Scene 2: Breakout Sessions on Saturday Morning

The breakout sessions were deliberately designed by ASCE to help foster a cooperative spirit between divisions in the interest of having them form joint institutes. The scene involved individual tables with groups that had some perceived common objectives (as arranged by ASCE), for example:

- Transportation Division, Land Development Division and Urban planning Division (eventually formed T&DI)
- Environmental Division and Water Resources Division (eventually formed EWRI)
- Architectural Engineering Division and the Construction Division

The Construction Division (CD) representatives immediately voiced their envy of AED, particularly in AED's successful planning. CD was not interested in teaming with AED and vice versa; however the two groups had a very good discussion.

Scene 3: Presentations on Saturday Afternoon

The afternoon sessions started with many of the technical councils expressing dissatisfaction in not wanting to be part of any institute or in joining ranks with any other technical councils or divisions. They did not fully understand why they had been required to attend the workshop. Several divisions presented similar messages. Some divisions, especially the larger ones, spoke in various tones (some positive, others negative), highlighting prospects of joining ranks with other divisions to form institutes: Transportation, Environmental, and Water Resources, among others. The Construction Division explained that they were not interested in merging with any other division or technical council, but they were very well-funded, had good plans, and were displeased that they were now required to wait five years to form an institute.

AED intentionally went last. It was the only group speaking with visual aids (about a dozen view graphs, PowerPoint did not yet exist). Stan Caldwell, presenting on behalf of AED, conveyed AEI's vision, specifically what AED and NSAE were expecting to achieve. This presentation provided a direct response to the challenges posed by Jim Davis in his speech from the night before. AEI was able to meet each of the new ASCE requirements that had been imposed to create an Institute, except for organizational age and headcount:

- Multidisciplinary institute with diverse membership, well beyond of Civil Engineering.
- NSAE with students and professional exam, and local chapters.

As Stan Caldwell completed his presentation, the whole room responded with applause and a standing ovation. Clearly the youngest and smallest division had placed itself prominently on the ASCE map.

Scene 4: Saturday Evening Reception with ASCE Board of Direction

At the end of the workshop, ASCE hosted a cocktail reception for all attendees, as well as ASCE Board of Direction and committee members. Stan Caldwell, Paul Seaburg, and Tom Babacz all attended. Even though they did not know most of the people in the ballroom, they were repeatedly approached by many who had heard of “the story of AEI” and the CONFRONTATION followed by the PRESENTATION. The positive impression made by AED had obviously resonated with many ASCE leaders.

Scene 5: Sunday Morning Departure

Stan Caldwell was checking out of the hotel in Philadelphia and was ready to leave for the airport, when Jim Davis requested a brief conversation. He started by apologizing for his behavior on Friday night. He explained that at the time he did not fathom what had unfolded before him. He followed Stan Caldwell all the way to his taxi, repeatedly stating that we will “make this happen” (i.e., establish AEI quickly in spite of the moratorium).

Transition to AEI

Debbie Smith was the first ASCE staff liaison for AED. Eventually, she transferred full-time to SEI. Patty Brown⁸ replaced her as AED Manager in early 1996 and went on to work very well with the AED volunteers. She was solely dedicated to AED and was not distracted with other ASCE activities. In addition, she exhibited an independent streak that was much-appreciated by the AED ExCom.

Since her arrival, Patty Brown had been trying to improve AED’s prominence within ASCE without much success. She had never even been invited into Jim Davis’ office. Patty Brown missed the Philadelphia event (she had been at Geo Congress in Utah). Upon returning to work after the weekend, she immediately had 200+ people at ASCE World Headquarters congratulating her; everyone in Reston, Virginia was talking about AED and AEI.

Following the Philadelphia event, AED had to prepare some paperwork to send out to the ASCE Technical Activities Committee (TAC). Stan Caldwell was summoned to attend a TAC meeting in Florida and deliver nearly the same presentation that he had delivered six months earlier in Philadelphia. Paul Seaburg, who happened to be a member of TAC at the time (a total of 15 members), threw some softball questions at AED. Other TAC members asked more difficult questions, but the die had already been cast. The AEI train was out of the station and anyone attempting to derail it was likely to be run over. With the formation of AEI, NSAE was granted two representative serving on the new Board of Governors, with AED being granted 4 BoG members.

Phase II : October 1997

Stan Caldwell insisted on an annual rotation of officers. In October 1997, Paul Seaburg became chair of the AED Excom, Tom Babacz became vice chair, and Stan Caldwell became past chair. Consequently, the development and coordination of all of the governing

⁸ *Master of Science in Geotechnical Engineering*

documents for AEI became the responsibility of Paul Seaburg. He, Patty Brown, and others at ASCE had to work quickly, so that the ASCE Board of Direction could formally approve AEI at its July 1998 meeting. Finally, Stan Caldwell got a phone call from ASCE staff stating that the establishment of AEI was going before ASCE Board of Direction for a final vote in July 1998 in Rapid City, South Dakota. This was a big deal.

ASCE requested that Stan Caldwell attend the ASCE Board of Direction meeting (i.e., be in the audience to respond to any specific questions that might arise). ASCE specifically requested that he represent AED, even though he was serving as past chair at the time. Stan Caldwell flew to Rapid City at ASCE's expense and witnessed a vote of 24 to 2 in favor of creating AEI. Anecdotally, the two votes opposed were two elderly directors who previously voted against the creation of any institutes and often voted in opposition to change of any sort. The governing documents stated that AEI would become live on Oct 1, 1998, consistent with the ASCE fiscal year, and completely voiding the five-year moratorium on creating on new institutes.

ASCE did support AEI's mission to provide a multi-disciplinary forum for building industry professionals engaged in the planning, design, construction, and operation of buildings to examine technical and professional issues of common interest. [11].

AEI's Birthday and Beyond

On Oct 1, 1998 a watershed meeting was held in Minneapolis, Minnesota. This was the final meeting of the AED ExCom and the first meeting of AEI Board of Governors (BoG). ASCE happened to have their annual conference in Minneapolis, which served as a good venue for AEI. This was Stan Caldwell's last day on the ExCom. As a matter of principle, he did not want to hold onto power and suggested that the leadership of AEI be refreshed with new people.



Figure 4: Original AEI Logo

After the hurricane of activity and effort expended into creating the AEI, the first leadership of AEI was predominantly new people to the scene: the first president of AEI was Tom Babacz. All of the original AED ExCom had already passed through the system except for Paul Seaburg. In the AED framework, he would have ended his term as chair to become AED's past chair. Instead he became AEI's first past president.

Ironically, the first past chairman of the AED ExCom never served a day as the chairman of the AED ExCom and the first past president of AEI never served a day as the president of AEI.

For the next four years, the AEI BoG would annually call Stan Caldwell and invite him to join the BoG. He routinely declined, so as to give others the opportunity to serve. In the fifth year – the ASCE president-elect called Stan Caldwell and asked if he would accept an appointment as ASCE’s representative on the BoG⁹. The term would commence in October 2003. Stan accepted, as this would allow him to serve on the BoG without the possibility of becoming a future AEI president.

The first meeting that Stan attended as a BoG member was held in Dallas, Texas. Stan was stunned at how AEI had seemingly lost steam during the five years of his absence:

- Board of Governors challenges
 - The previous model of officer succession had been that active committee members and chairs were invited to serve on the ExCom/BoG. Those demonstrating leadership abilities were subsequently nominated for vice chairman/president-elect. In the absence of active standing committees, this officer chain no longer existed and future leadership was not being cultivated.
 - Because some new BoG members were being brought in without any prior AEI experience, many had little understanding of the operations and significance of AEI and the momentum of AEI had diminished from the days of its inception.
- Most/all standing committees had been dissolved because of lack of activity.
- AEI Manager Patty Brown was ending her relationship with AEI and ASCE.

It was apparent that virtually all ongoing activities of AEI were the result of the individual efforts of only two people: Mohammed Ettouney and Norm Glover.

2004 Strategic Planning Meeting

Clearly, AEI needed to change direction. In 2004, a strategic planning meeting was called for the BoG. Each governor was required to bring two “big ideas” to the meeting. The 2004 AEI Strategic Planning Retreat was hosted by Bijan Mohraz¹⁰ at SMU in Dallas, Texas. The director of T&DI, Jon Esslinger, facilitated the retreat. The intent was to conduct a SWOTT¹¹ analysis.

Stan Caldwell arrived to the BoG meeting with his two big ideas

- Idea #1: As the US Green Building Council (USGBC) was then floundering under the weight of its own success (administratively, financially), it couldn’t keep up with its own business. Patty Brown had casually mentioned that she thought that AEI could buy the USGBC. Stan Caldwell’s idea was to try and purchase the USGBC with ASCE funding. Justification: sustainability fits very well within AEI and is highly multidisciplinary.

⁹ One governor is appointed by ASCE’s President-Elect. The only constraint is that if you are appointed by ASCE, you cannot be considered for higher office in AEI.

¹⁰ Bijan Mohraz was the first editor of *Architectural Engineering Journal*. He remained on the post of editor for 10 years, until 2003.

¹¹ SWOTT: strengths, weaknesses, opportunities, threats, and trends

- Idea #2: creation of a Building Security Council (BSC). AEI was less than three years old at the time of 9/11. Norm Glover had been championing anti-terrorism activities for many years. Mohammed Ettouney was getting involved in blast resistant design and multi-hazard mitigation. BSC would be similar to USGBC, along with ranking system analogous to LEED for multi-hazard terrorism resistance and building security. This system would involve point systems, accreditation of professionals, etc. This initiative would involve creating an organization that would be far different from anything currently within ASCE.

Efforts Preceding Formation of the Building Security Council

Stan was acknowledged for his big ideas. However, he was stuck having to champion them. Idea #1 was dead-on-arrival, it turned out that USGBC was not for sale at any price. Stan was able to float Idea #2 with ASCE, since the Deputy Executive Director of ASCE (Larry Roth) was Stan's "buddy" from high school and college. Larry Roth was able to orchestrate a phone conference with Pat Natale, John Durant, and Stan Caldwell to review the concept of BSC in some detail. All parties concluded that the concept for BSC had no obvious fatal flaw.

The ASCE Executive Committee (3 presidential officers, and 4 VPs) authorized a task committee on the Building Security Council. Larry Roth named Stan Caldwell as chair of the task committee. The task committee's charge was to recruit 9 members, conduct a market study, and an in-depth feasibility study for BSC. It was at this time that Stan Caldwell recruited Mohammed Ettouney, who is known for his numerous industry connections. The initial objective was to construct a multidisciplinary panel of building security experts. Mohammed Ettouney recruited the majority of those experts. At the first meeting of the task committee, Stan Caldwell presented his idea to the assembled task committee members – to develop a 501c6 corporation that would provide security ratings of buildings and certifications of specially-qualified individuals (much like USGBC). Consistent with the ASCE Executive Committee's charge, the BSC task committee hired a consulting firm to conduct a market survey.

Formation of the Building Security Council

Over the course of ensuing year of continuous task committee study and development, the ASCE Board of Direction summoned the task committee to deliver three formal presentations summarizing the task committee's findings. Stan Caldwell was the primary presenter on all three occasions. At the seminal presentation where a go/no-go vote would be taken, he was actively supported by Mohammed Ettouney and Michael Goodkind¹². The latter presented a compelling argument that the BSC could be a significant source of revenue for AEI and ASCE. As the process moved forward, BSC evolved to be a much bigger initiative than AEI had imagined. At the third presentation, AEI made a formal request of ASCE for \$750K to officially start BSC.

¹² *Michael Goodkind, CEO of Alfred Benesch & Co. in Chicago, a former ASCE treasurer and director, had been appointed by ASCE to serve on the BSC Task Committee*

The ASCE Board of Direction concluded that AEI had developed a sufficiently robust plan and was willing to support the initiative. Larry Roth officially congratulated Stan Caldwell on AEI's initiative. At this moment the Building Security Council was established. With a few exceptions, the BSC task committee's members became the founding members of the BSC Board of Directors and Stan Caldwell became the first BSC President. It is through this circle of BSC task committee members that Chuck Meyer and others joined AEI.

Restructuring of ASCE Governance - 2005

In 2005, ASCE restructured its governance:

17 Members of the new ASCE Board of Direction:

- 12 Regional Directors (3-year terms)
 - 9 representing the Geographic Regions (1 each)
 - 1 representing the International Region (outside USA)
 - 2 representing the Technical Region (ASCE's Institutes)
- 2 At-Large Directors (2-year terms)
- 3 Presidential Officers (3-year terms)

Previously, any ASCE member who was interested in climbing the ranks of ASCE volunteer leadership would have to get involved first through their local geographic units (districts and zones). There was no upward path for ASCE members whose involvement was entirely through ASCE's technical units. Under the format of the new governance, an ASCE member could climb the ASCE ranks by getting involved through the institutes. Two people would be elected to represent ASCE's Technical Region on the ASCE Board of Direction, one in the summer of 2005 and the other a year later. Any institute could nominate a candidate. Stan Caldwell was approached by Bijan Mohraz in 2004 to accept AEI's nomination and run to become ASCE's first Technical Region Director. He politely declined. A month later, Joe Paoluccio (AEI President at the time) tried to convince Stan Caldwell to embrace this challenge. Once again, he declined. Finally, Mohammed Ettouney called with the same question. Not knowing how to turn down someone that he felt so indebted to, Stan Caldwell agreed to stand for election.

Stan Caldwell quickly found what he had gotten himself into was far more than he had anticipated. A total of four institutes had nominated candidates: AEI, SEI, EWRI, and COPRI. Stan viewed the other three as all having stronger resumes than his own. For example, the others all had PhDs and were nationally-known. All four candidates were summoned to a series of private interviews with the Technical Region Nominating Committee, which was comprised of the presidents and president-elects of each institute. No one achieved the 75% vote necessary to go forward alone on the ASCE ballot. However, Stan Caldwell emerged as one of two finalists going forward. His opponent chose to campaign vigorously coast-to-coast over the next several months. Stan Caldwell chose not to campaign at all. It was a smart strategy, and he won the election!

In October 2005, Stan Caldwell was sworn in as ASCE's first-ever Technical Region Director. In this position, he represented ASCE's institutes, the technical units still remaining under TAC, and the Society as a whole, for the next three years. To avoid any perceived conflicts-of-interest, he resigned his position on the AEI BoG upon joining the

ASCE Board of Direction. In October 2007, he advanced to serve on the ASCE Executive Committee. At that point, to avoid any perceived conflicts-of-interest, he resigned his position on the BSC Board of Directors.

AEI Leadership

Echoing the ideas of Ron Helm in forming the NSAE and consistent with the vision of AEI founders, AEI's presidents have been leaders from industry, as well as academia. Respecting the strength of the two diverse halves of AEI, the Board of Governors repeatedly sought to elect leadership from both sectors of the institute's membership. Since the formation of AEI, the representation of industry and academia has been fairly equal in the leadership of AEI. The following list includes all of the presidents in AEI's history:

- Paul Seaburg, 1998
- Thomas R. Babcz, 1999
- Norman J. Glover, 2000
- Thomas E. Glavinich, 2001
- Barry T. Rosson, 2002
- Kenna M. Chapin, 2003
- Bijan Mohraz, 2004
- Joseph P. Paoluccio, 2005
- Mohammed M. Ettouney, 2006
- G. Edward Gibson Jr., 2007
- Paul J. Rielly, 2008
- Charles A. Meyer, 2009
- Clarence E. Waters, 2010
- Clarence E. Waters, 2011
- Raphael A. Yunk, 2012
- Ali M. Memari, 2013
- Mark A. McAfee, 2014

Note: a picture glossary of AEI leadership is provided in Appendix B.

Similarly, AEI Board of Governor representation has seen a diverse mix of different engineering disciplines from both academia and industry. Because the different sectors of the AE field have different motivations and pursuits, the marriage of academia and industry has served the institute well, particularly since almost 40% of the institutes membership consists of students. A complete list of Board of Governors is provided in Appendix A, with a picture glossary of AEI leadership provided in Appendix B.

AEI Conferences and Symposia

One of the best ways that The Institute found to advertise AEI membership's successes and to share lessons learned on joint initiatives is through a conference / symposia model. Given AEI's mission of multi-disciplinary integration of building design solution, AEI conferences serve as an open forum for existing and new ideas for professionals from industry and

academia. The following list offers a glimpse of the diversity in AEI's pursuit of tackling burgeoning issues in architectural engineering.

- Conference: "Building Integration Solutions" in Austin, Texas, September 17-20, 2003
- Symposium: "Building Security – A Multidisciplinary Outlook" in New York, NY, March 10, 2005
- Conference: "Building Integration Solutions" in Omaha, Nebraska, March 29-April 1, 2006
- Conference: "Building Integration Solutions" in Denver, Colorado, September 24-27, 2008
- Symposium: "Aging Buildings – Designing for Longevity" in New York, NY, December 9, 2009.
- Conference: "Building Integration Solutions" Oakland, California, March 30-April 2, 2011
- Conference: "Building Solutions for Architectural Engineering" at State College (Penn State), Pennsylvania, April 3-5, 2013

Conferences have served as a venue for publishing technical papers, as well as showcasing state of the art developments in industry and their applications. This broad range of involvement from the diverse membership of AEI has attracted participation of many professionals from other institutes and organizations.

Forging Ahead

The AEI founding fathers sought to improve the means by which the engineering industry designs, constructs, and maintains buildings. The integrated design solutions and multidisciplinary perspective has led to an active membership that challenges its peers to transcend the expertise of a single discipline. It is only through the sharing of knowledge and adaptation of practical experience of the different disciplines that novel building integration solutions can be achieved.

The institute has tremendous potential. No other professional institute encompassing AEI's mission exists in the United States. In capitalizing on the lessons learned in the institute's young history (without repeating them) and championing issues which interweave the expertise of all engineering disciplines, the engineering community will come to realize that the only sensible forum for addressing issues pertaining to the design, construction and maintenance of buildings is and will be the **Architectural Engineering Institute**.

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